Ford 3G Alternator for the 1985 through 1995 32V Porsche 928

Step by Step Guide

This step-by-step guide covers converting and installing a Ford 3G alternator on the Porsche 928 32v motor. Use at your own risk.

Materials:

- Alternator:
  - Option 1 (preferred): Select one of the **Single Bridge** alternators from here: https://alternatorparts.com/ford-3g.html
    - When placing the order, specify in the notes that you want a Lester 7774 case
  - Option 2: https://www.powerbastards.com/proddetail.asp?prod=7774-220
  - Option 3: Order one of the alternators that fits the 1995 Ford Contour 2.0L from here: https://www.dbelectrical.com
  - Option 4: Order any alternator that fits a 1994-1997 Ford Contour 2.0L 4 Cylinder
- Pulley:
  - Option 1 (54mm): GP712 (good for most cars)
  - Option 2 (49mm): Powermaster 115 (better idle output, not good for late model cars with larger crank pulleys).
  - Option 3: Use the Alternator RPM Calculator spreadsheet to select a pulley size.
- Voltage Regulator
  - Option 1 (preferred): F794HD https://store.alternatorparts.com/f794hd-heavy-duty-voltage-regulator-for-ford.aspx
  - Option 2: Any regulator that fits a 1997 Ford F150 V8
  - Optional (can re-use old ones instead):
    - 2x M4-0.7x17mm T20 thread-forming screw to mount brushes in regulator
      - Ford OEM Part #: N803090-S7M
    - 4x M4-0.7x10mm T20 thread-forming screw to mount regulator
      - Ford OEM Part #: N805911-S7M
- Pigtail adapter for alternator: Motorcraft WPT119
- Stator connector adapter for alternator: Motorcraft WPT1129
- 1x Ring terminal crimp connector for alternator voltage sensing wire
- 2x Butt connectors for factory exciter wire and stator connection
- 1x M16 flat washer (or 1x 5/8” washer) for use as a pulley spacer
  - Make sure that the washer measures ~3mm thick
- 2x M16 flat washers (or 2x 5/8” washers) for use as spacers around the mounting tab bushing
  - Make sure that their total thickness when both washers are stacked is ~6mm
- 1x M10 nut, lock washer and flat washer
- 2x 3/8” flat washers
  - Make sure that their total thickness when both washers are stacked is ~3mm

- 34” 6 rib belt (longer than stock)
    - Option 1: Gates 340J6
    - Option 2: Continental 4060340
- Red thread locker
- Blue thread locker

Steps:

1) Disconnect battery.

2) Remove front under body panel.

3) Loosen alternator top mounting bolt (17mm).

4) Loosen nut on back of belt tension adjuster (17mm).

5) Loosen jamb nut on tension adjuster (13mm).

6) Loosen tension adjuster bolt (13mm) and remove belt.

7) Remove large tension adjuster bolt and nut from adjuster (17mm).

8) Remove tension adjuster assembly mounting bolt from power steering pump cassette/bracket (17mm).

9) Remove rear cover of factory alternator and disconnect air cooling hose.

10) Disconnect main power lines and exciter wire from back of factory alternator.

11) Remove alternator top mounting bolt and remove alternator.
    a. If your bolt does not clear the fan shroud, you may need to remove the fan shroud mounting bolts and lift it a couple of inches.

12) Remove pulley from new alternator.
    a. The nut is 15/16”, but a 24mm socket will also work.
    b. Hold the pulley with one hand with a glove.
    c. Wear eye protection.
    d. Use an impact wrench to remove the nut.
    e. Pull the lock washer and pulley off of the alternator shaft.

13) Place an M16 flat washer (or 5/8” washer) on the alternator shaft.

14) Place the pulley on the alternator shaft on top of the flat washer.
    a. If using the 54mm pulley (GP712), discard the lock washer.
    b. If using the 49mm pulley (Powermaster 115), reinstall the lock washer.

15) Place red thread locker on the threads of the alternator shaft.
    a. Warning: It only needs a couple of drops. If you use an excessive amount of thread locker, it will bond the pulley (and/or lock washer, if you use one) to the shaft, which will necessitate the use of a puller to remove the pulley in the future.

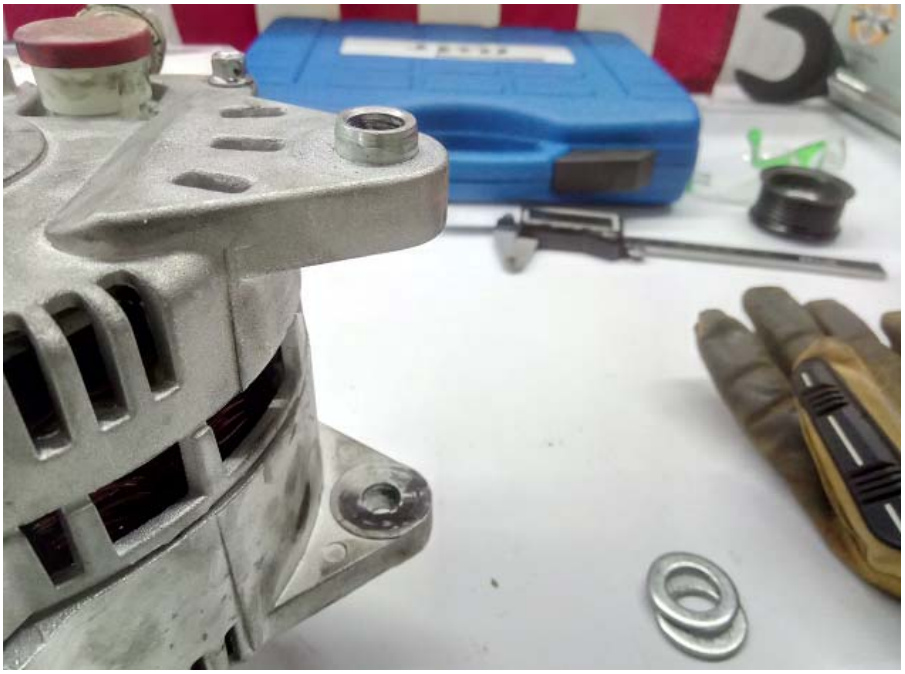
16) Install the thin nut that came with the alternator, using the impact wrench, until tight or until the lock washer is flattened.

17) Turn the alternator over and rest it on the pulley.

18) Remove the pre-installed voltage regulator and install the new regulator.

19) Assemble the wiring harness:
    a. Check the pig tail wire lengths and trim them to your desire length.
    b. Using a butt connector, attach the new stator plug to the white/middle wire on the new alternator pig tail.
    c. Attach the new ring terminal to the yellow wire on the new alternator pig tail.
    d. Cut off the ring terminal on the small green exciter wire on the factory harness.
    e. Using a butt connector, attach the green wire from the new alternator pig tail to the small green exciter wire on the factory harness.

20) Loosely install the alternator using the top mounting bolt.
    a. Slide the top mounting bolt all the way through the alternator mounting ears and the factory mounting tab.
    b. Place two M16 flat washers (or two 5/8” washers) over the protruding bushing on the rear alternator mounting tab.
    c. Place the M10 flat washer on the top bolt.
    d. Place the M10 lock washer on the top bolt.
    e. Loosely screw the M10 nut on the top bolt but do not tighten it.



21) Loosely install tension adjuster bracket.
    a. Use the factory 17mm bolt.
    b. Place two 3/8” flat washers on the bolt between the tension adjuster bracket and the power steering pump cassette/bracket.
    c. Loosely finger tighten so that the bracket can still move.
    d. Ensure that the tension adjuster bracket surface is flush with the alternator lower mounting tab. If not, adjust the number/thickness of the washers until the bracket is lined up properly.

Spacing washers between tension adjuster bracket and power steering pump/cassette:

Back of tension adjuster bracket is perfectly flush with front of alternator lower mounting tab:

22) Loosely mount the tension adjuster to the tension adjuster bracket with the 17mm stud and nut.

23) Install the new belt.

24) Tighten the 13mm tension adjustment bolt to achieve the desired belt tension.

25) Check that the belt clears the tension adjuster and adjustment bolt.

26) Check the belt alignment by placing a straight edge on the alternator pulley and checking the distance between the straight edge and the belt along the entire length. The gap should remain the same along the entire length. Adjust the pulley spacer if needed.

27) Tighten main adjuster mounting bolt to the power steering pump cassette/bracket.
    a. 17mm bolt: 29 ft lbs

28) Tighten the tension adjuster stud/nut to the tension adjuster bracket.
    a. 17mm nut: 29 ft lbs

29) Tighten the tension adjuster jam nut.
    a. 13mm bolt: 15 ft lbs

30) Tighten the top mounting bolt.
    a. Remove the M10 nut.
    b. Add blue thread locker to the end of the top mounting bolt (or inside of the nut).
    c. Tighten the nut to 29 ft lbs.

31) Secure the factory positive wires and the new ring terminal to the alternator positive stud.
    a. Hand tighten. Do not over tighten or it may break the post.

32) Plug in the stator connector and alternator pig tail.

33) Protect the wires with the wiring loom or sheath of your choice.

34) Position cooling hose next to the alternator.

35) Lower the radiator fans back into position (if you raised them earlier).

36) Reconnect the battery.

37) Start the car and check everything while idling.
    a. Belt tracks straight.
    b. No wobble in pulley.
    c. Volts indicated on dash are at least 13v (close to 14v is normal for no load).
    d. Volts measured at jump posts and cigarette lighter are at least 13v (close to 14v is normal for no load).

38) Shut off the car and reinstall the front under body panel.